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Techtalk: 13a-Mobile Learning and the Knowledge Age

By David C. Caverly

In 2009 Caverly, Ward, and Caverly discussed the role of mobile phones in developmental education. With tablet devices such as the iPad emerging in 2010; the continuous development of “smart” phones (i.e., running applications like a computer) such as the iPhone, Windows phone, and Android-based phones over the last three years; and the increase of laptop use, mobile devices are the technology access point for learning for many developmental students.

In this column, I’ll review student accessibility to mobile devices, the potential for learning through them, and review a framework for integrating mobile applications (i.e., apps) within instruction that is useful for both developmental courses and learning support. Since access to “smart” mobile devices is significantly less at two-year colleges, I’ll also review mobile learning through feature phones (i.e., with Internet access but not able to use apps) and standard phones (i.e., texting available but no Internet access).

Mobile Device Accessibility

During the Fall 2012 semester, 86% of students brought laptops, 62% smart phones, 15% tablets, and 12% e-readers (Dahlstrom, 2012). Although most still used laptops or desktops for academic purposes, two-thirds reported also using smart phones and tablets and half reported using e-books academically. From these smart mobile devices, students reported accessing course websites, syllabi, course management systems, grades, financial aid information, registration, textbooks, library resources, and transcripts. My students with smart phones used mobile apps such as *DriveSafe.ly* (iSpeech, 2012) to read and respond to any text message or e-mail orally as they avoid texting while driving. Others used feature phones with calendars, e-mail, portable media players, still and video cameras, Internet access, and GPS navigation for time management and mobility around campus. Students with standard phones used calendars and texted their peers or professors. Others have converted their standard phones to “smarter” phones by texting Google to search for word definitions, getting driving directions, sending and receiving g-mail, updating and viewing a calendar, accessing Facebook or Twitter, and even using Google Voice to make long distance phone calls (Gordon, 2011). Still, for a third of the students, data plan or texting costs for feature phones or standard phones were prohibitive.

Mobile Devices for Learning

Chipchase (2007) asked adults all over the world three basic questions. Consider all the “stuff” (Carlin, 2006) you own. What do you usually carry on a daily basis? Of that stuff you carry, what did you use today? Before you read on, answer these three questions for yourself.

He found from urban areas in modern countries to rural areas in developing countries the answer was usually the same: Three items were always being carried. Almost all said two of the items were keys and money. The third item—of 6 billion people in the world—for most, was their mobile phone. He argued these three items have spiritual, emotional, and functional value. Keys and money fulfill physiological and safety needs from Maslow’s hierarchy (1943). Keys provide access to shelter and in developed countries they provide transportation. Money or credit cards allow food to be bought. With all the information that is produced in the Information Age, it is impossible

to remember everything. Thus people delegate remembering the phone number or the birthday of a best friend to their phone or to the Internet. Mobile devices have an added value of acting as an external memory device contributing to one’s sense of belonging.

What does this mean for developmental students? Although it is much more *efficient* to remember, it is often more *effective* to use mobile devices as external memory devices, storing or providing access to what one needs to remember. Mobile devices can make it possible to teach and measure knowledge beyond Anderson and Kratwohl’s (2001) first level of Bloom’s Taxonomy by expecting higher cognitive processes of application, analysis, evaluation, and creation skills required in the Common Core standards in 45 states (and similar standards in the other 5 states). Since most students are carrying mobile devices into the classroom, and instructors use extraordinary measures to prevent students from using them, moving beyond measuring simple remembering on tests to accessing information for application or critique can reduce the phone’s use as a cheat sheet. For example, rather than asking students individually to find a main idea in one paragraph, one could ask small groups of students to compare three different disciplined-based paragraphs as they adapt a strategy for finding main ideas. As the group is learning how to apply and adapt this strategy to different disciplines, they could collaborate by texting on their mobile devices. Once each individual understands and can verbalize the strategy, he or she could adapt the strategy without help from peers on multiple discipline-based paragraphs for a test. Simply, mobile devices are a natural enhancement for guided practice instruction after modeling and before independent practice. Why not celebrate and exploit the fact that almost every student has mobile access to information through texting or through searching on smart phones or tablets?

Another major affordance of mobile devices is the ability for students to learn in a mobile environment, outside the restricted environment of the formal classroom. Reviews of mobile learning research (Jeng, Wu, Huang, Tan, & Yang, 2010; Naismith, Lonsdale, Vavoula, & Sharples, 2004) conclude the essential attributes of mobile learning are learners with technology who are mobile. Benefits arise by getting out of the developmental classroom into different situations where the concepts students are learning can be adapted (Brown, Collins, & Duguid, 1989; Lave & Wenger, 1991). For example, students assigned to groups reading different discipline-based text chapters could collaborate on highlighting and note taking in the margin using an app like Diigo (2012), allowing all students in the group to read the same chapter, add notes or highlight, and then to share it. Others in their group can see the highlights or notes to discuss and debate the strategies they used to create it. This social construction of knowledge fosters *connectivism* through social discourse (Siemens, 2004), particularly if coached by a learning supporter who is also a member of the mobile learning environment. An enhanced, mobile instructional environment creates an informal learning space, which is where 92% of postsecondary learning takes place (Banks et al., 2007).

Mobile Learning GAP

A useful way to consider the best apps for mobile learning is to consider three functional categories: **G**athering apps, **A**rranging apps, and **P**resenting apps.

In an earlier column (Caverly, 1998), this G.A.P. acronym was presented as a useful mnemonic to understand the role of constructing knowledge from information. Here, it is equally useful for understanding the use of mobile devices in mobile learning environments. Gathering apps allow students to gather information from a variety of textual, auditory, visual, and graphic sources. Arranging apps allow students via mobile learning, situated environments to collaboratively construct an understanding. Presenting apps disseminate the representation of the groups' understanding for further consideration by a larger audience as meaning is coconstructed.

Conclusion

Mobile devices are becoming the technology of choice; this may be due to their easy access to students' lives outside academia. Perhaps their ability to free the student and the instructor to escape from the constraints of brick and mortar classrooms to expand learning environments is another. In the next two columns, I'll review specific apps for the development of literacy, mathematics, and learning strategies. I will explore their capabilities for collecting and organizing information as well as sharing newfound knowledge which can be a boon for developmental instruction.

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efforts to develop and implement strategies to increase ERG rates (Padilla, 1997). These findings also emphasize the need for institutions to prepare and establish systems to measure trends and patterns in order to collect evidence-based information to report academic performances and growth in ERG rates.

Postsecondary institutions are increasingly being scrutinized by the government based on their academic performances, values, and outcomes because of the alliance of federal funds, so the establishment of such information can be essential for reporting academic excellence and improving institution practices (Boening & Miller, 2005; Staley & Trinkle, 2011). Institutions willing to adopt new practices, apply heuristic measures, and evaluate outcomes will have a greater influence on retention and student success. Although further research and additional apparatus are pertinent to produce ways to increase ERG rates and assist students with completing their education successfully, these strategies are essential and can make a difference for students.

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